

# RCA 5- $\mu$ S MEMORY SYSTEMS

## Coincident-Current Types Incorporating Integrated Circuits



**80100  
Series**

RCA-80100-Series Memory Systems are compact, coincident-current systems with a full-cycle time of 5  $\mu$ S. They incorporate integrated circuits and are designed to provide high reliability at low cost. These systems are available with capacities up to 16,384 words, 36 bits per word.

### General Specifications

#### Capacity:

Up to 16,384 Words

#### Word Size:

4 to 36 Bits Per Word

#### Environmental Capabilities:

##### Temperature:

Operating . . . . . 0° to +50° C

Non-operating . . . . . -40° to +85° C

##### Relative Humidity (Without condensation):

Operating . . . . . 90% maximum

Non-operating . . . . . 95% maximum

#### Speeds:

Full-Cycle Time . . . . . 5.0  $\mu$ S

Half-Cycle Time . . . . . 2.5  $\mu$ S

Access Time . . . . . 1.5  $\mu$ S

#### Operating Modes:

Read/Restore, Clear/Write, Read-Only, Write-Only, Read/Modify/Write

#### Addressing Modes:

Random, Sequential, Sequential-Interlace

#### Dimensions:

All models fit EIA standard 19" racks

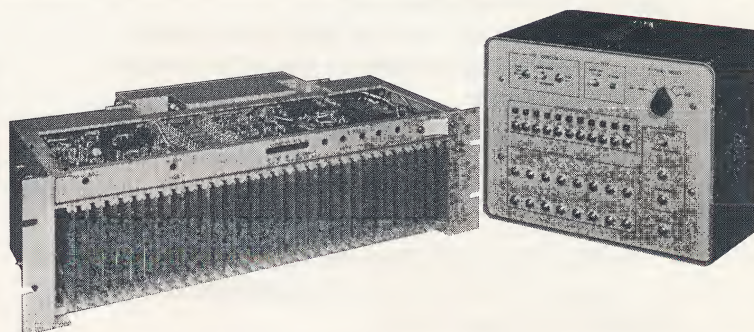
#### Examples

Capacity	Dimensions
4096 Words, 18 bits/word	5-1/4"H x 20"D x 19"W
4096 Words, 36 bits/word	10-1/2"H x 20"D x 19"W
16,384 Words, 36 bits/word	19-1/4"H x 20"D x 19"W

Also Available with Dimensions to Meet Your Requirements

#### Power-Supply Requirements:

All models operate from standard 115 V  $\pm$  10%,  
60  $\pm$  3 Hz sources



RCA-80100-Series 5  $\mu$ S Memory System with Tester for Self Checking.

### Features

- Integrated-circuit interfacing — consisting of high-level (0 and +4 V typical) DTL gates with excellent noise immunity, low power requirements, and high reliability
- Conservative system timing — temperature-compensated drive circuits provide excellent operating margins at temperature extremes
- Undervoltage and overvoltage protection and voltage sequencing for memory retention
- Pluggable modules
- Double-ended drive system — simplifies driver requirements
- Double-rail or single-rail output
- Low power consumption — 4,096-word, 36 bits-per-word system dissipates only 300 watts
- Compact design
- High storage capacity
- Design flexibility — smaller models expandable to full capacity of 16,384 words, 36 bits per word

### Options

- Tester for self-checking — highly desirable for routine maintenance and trouble-shooting: Built-in pattern generator with indicator lights provides four test patterns:
  1. All "1"
  2. All "0"
  3. Worst-case (Double checkerboard)
  4. Worst-case complement
- Voltage-margin switches — provide operating-voltage margins of  $\pm$  5%
- Parity-check circuit — for generating and checking parity bits
- Special interface capabilities to meet your requirements
- Designs to meet special commercial or military specifications

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## Interface Specifications

**Input (Memory Address Register) —**

Control lines required: 3

1. Clear/Write level or Write-Only level
2. Read/Restore level or Read-Only level
3. Start pulse

Control-pulse requirements:

Duration . . . . . 1000 ns minimum

Rise time . . . . . 100 ns maximum

Fall time . . . . . 300 ns maximum

Address and data must be valid for not less than 1  $\mu$ S after start of operating cycle ( $t_0$ )

Typical Voltage Levels:

Logical "1":  $+4 \pm 0.5$  VLogical "0":  $0 \pm 0.5$  V

Currents:

In the "1" condition no current is required by registers

In the "0" condition 2 mA is accepted by signal source

**Output (Memory Information Register) —**Address must be valid for not less than 1.5  $\mu$ S after start of operating cycle ( $t_0$ )

Output leads: Double-rail or single-rail

Output-pulse characteristics:

Rise time and fall time

do not exceed 100 ns

Typical Voltage Levels:

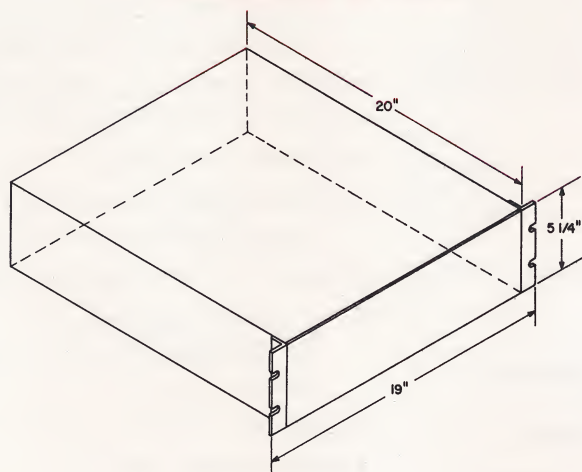
Logical "1":  $+4 \pm 0.5$  VLogical "0":  $0 \pm 0.5$  V

Currents:

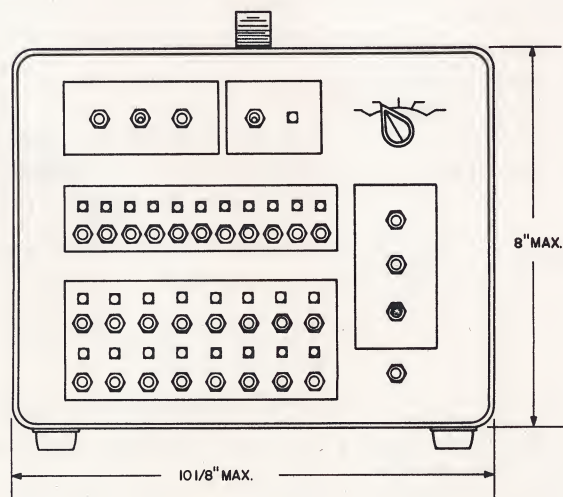
In the "1" condition a register will supply 5 mA maximum per bit

In the "0" condition a register will accept 50 mA maximum per bit

## DIMENSIONAL OUTLINE



92CS-14239



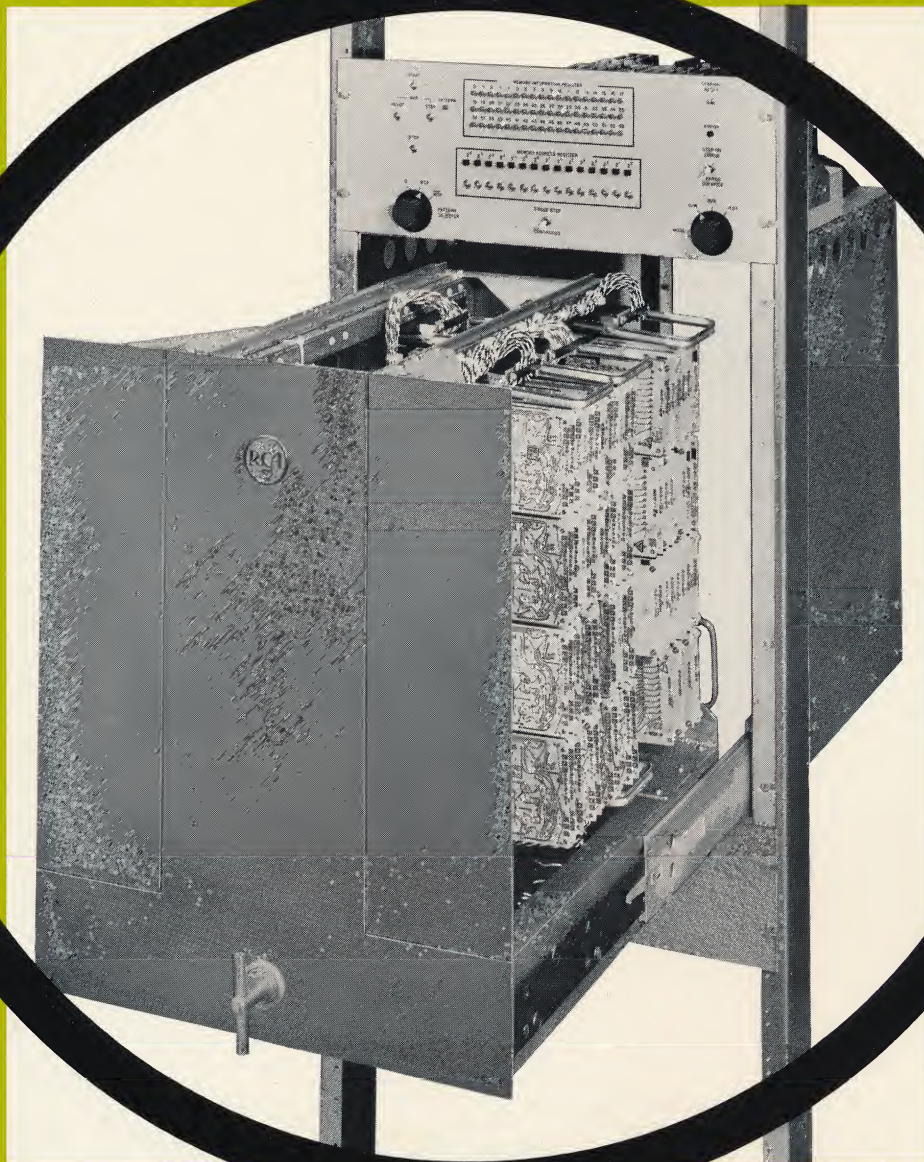
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Tester for Self Checking



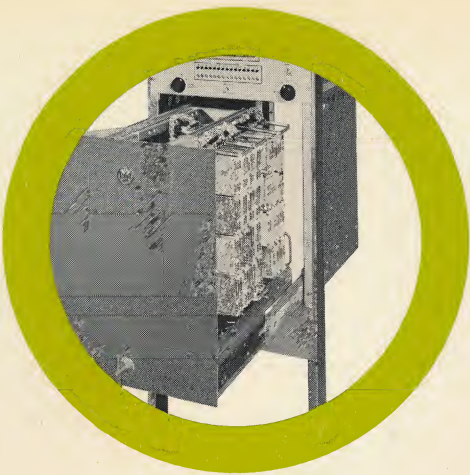
# *the new RCA 1- $\mu$ S memory system*

*An advanced  
integrated circuit memory system  
for computers and data processors*

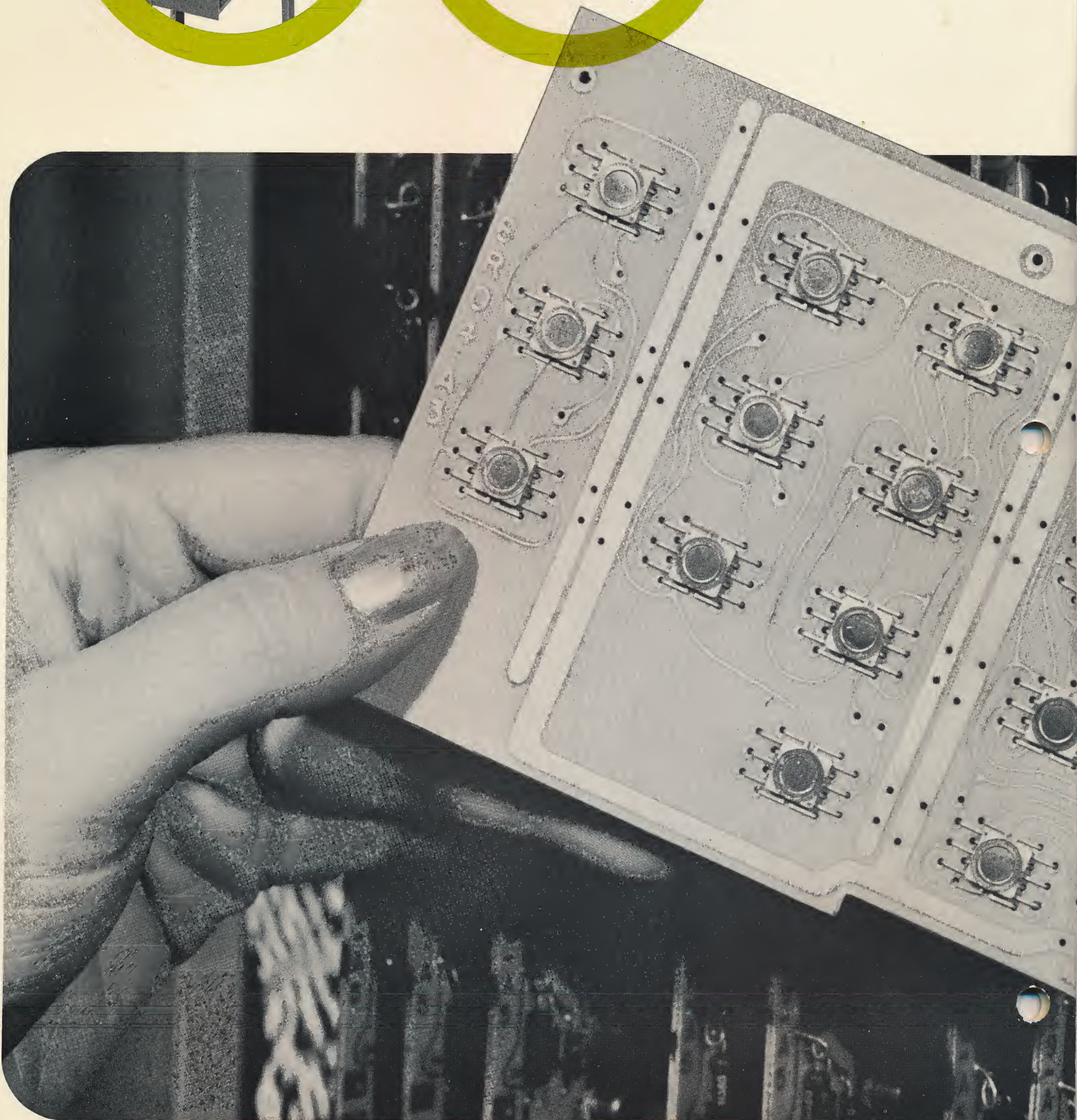


The Most Trusted Name in Electronics





Integrated circuits in RCA's new 1- $\mu$ s memory system make it possible to achieve higher speed, smaller over-all system size, and better reliability than with discrete components.



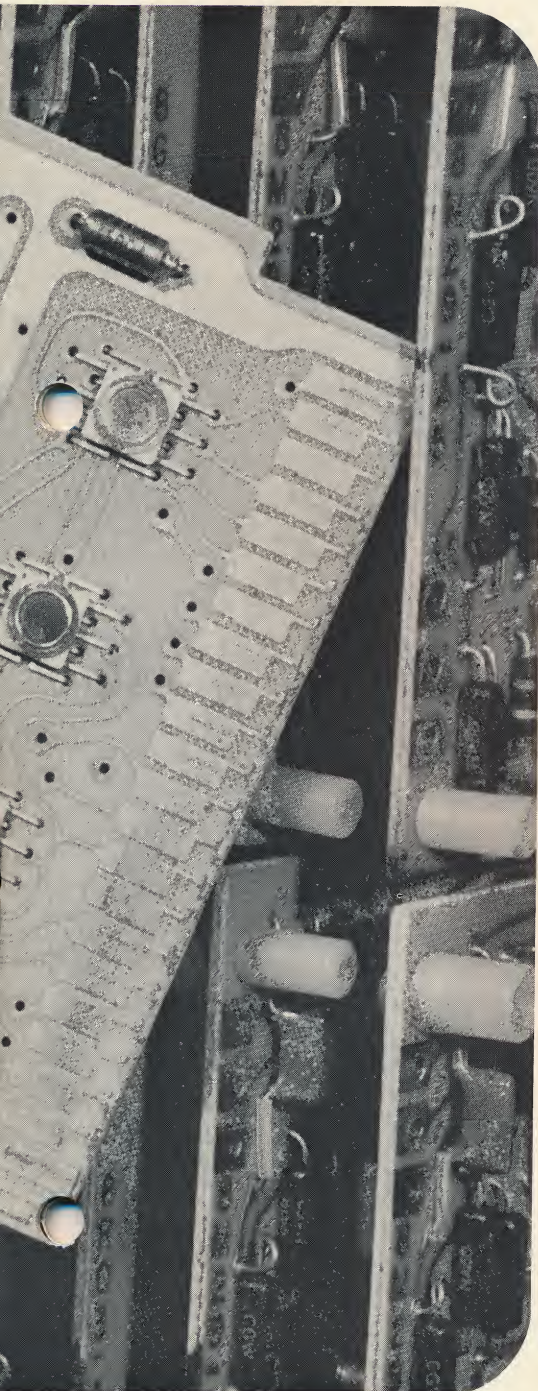


## ***RCA's new 1- $\mu$ S memory system achieves superior performance with integrated circuits***

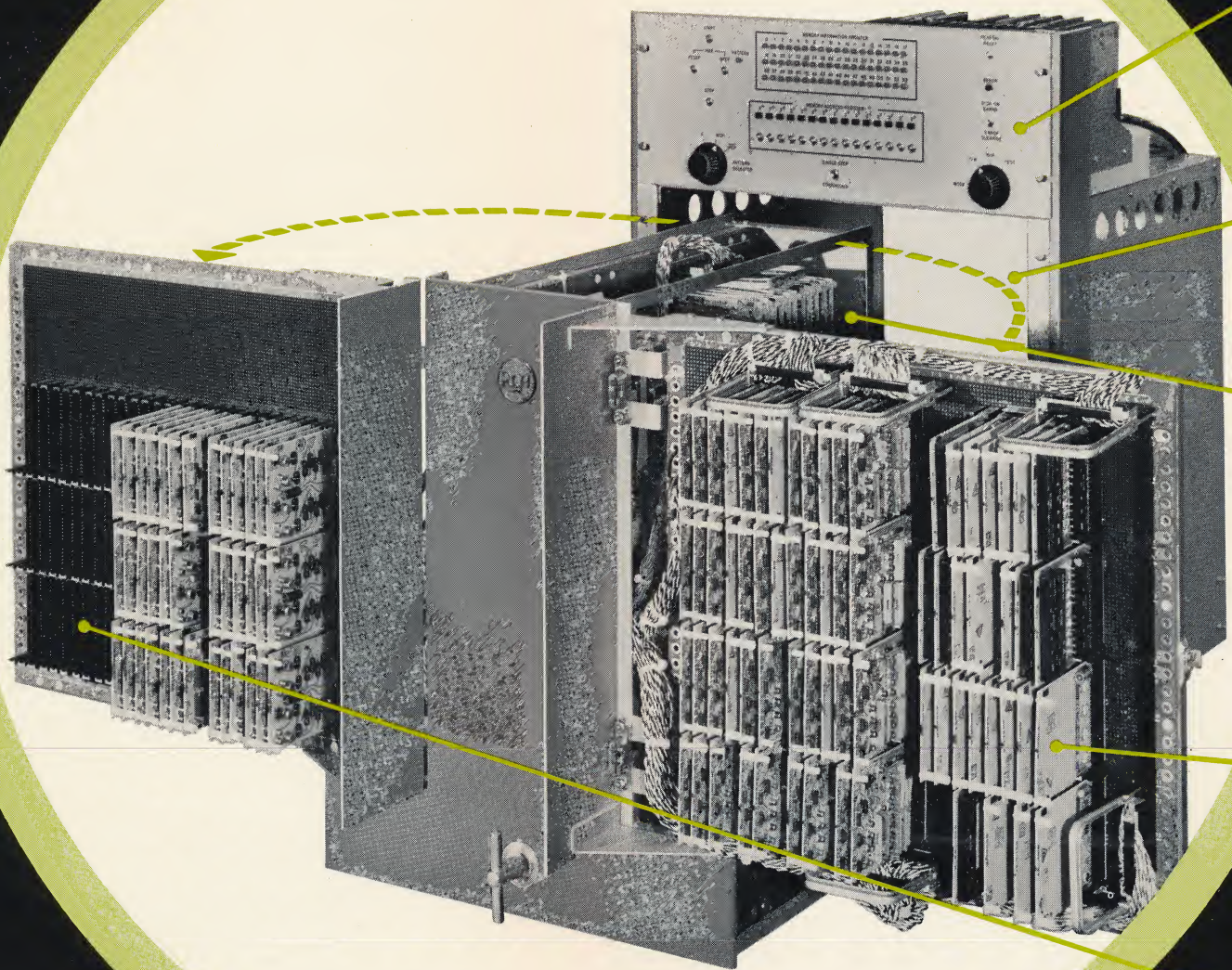
Integrated circuits in this new ferrite memory system increase speed, reduce size, lower power dissipation, and improve reliability. The fast, 1- $\mu$ s full cycle speed achieved with monolithic circuitry is a state-of-the-art speed for medium storage capacity memories of its type. Information retrieval is equally efficient, with access time conservatively specified as 500-ns.

Other refinements and innovations have been introduced by RCA in its new 1- $\mu$ s memory system. For example, integrated circuits are mounted on field-proved RCA plug-in modules. Memory size is expandable to 32,768 words x 36 bits. New RCA 30/18 ferrite cores make this system unique. Swing out panels provide easy access to electronics. And a variety of optional equipment gives you custom flexibility to meet your needs.

**AVAILABLE NOW.** This on-line information storage system is available now for data handling service in a wide range of applications such as ground telemetry, industrial process control, and bio-medicine. Explore the capabilities of this new RCA memory system on the following pages to see how it can provide improved performance for your computers and data processing equipment.









Optional self-tester adds to system reliability. Comprehensive automatic self-checking system simplifies routine maintenance and trouble-shooting.

Electronic circuits are fully accessible. The entire system slides out on rugged, ball bearing slides, and panels swing out to expose the system's interior.

All cores, planes, and stacks are manufactured by RCA to exacting standards. Unique 30/18 ferrite cores were developed and produced by RCA for this memory system.

Smaller size, higher speed is achieved with integrated circuits. Field-proved RCA plug-in circuit modules assure high reliability.

Flexible system includes expandable capacity to 32,768 words x 36 bits. Easy interfacing with most data processors.

# ***RCA's 1- $\mu$ S integrated circuit ferrite memory system is fast! versatile! reliable!***

## ***Fast***

- 1- $\mu$ s full cycle speed; switches a full word, up to 36 bits; 500-ns access time for fast information retrieval.
- Integrated circuit logic contributes substantially to high speed. Interconnections are shorter; power consumption is lower.

## ***Versatile***

- Standard system stores up to 16,384 words x 18 bits. Expands to 32,768 words x 36 bits.
- Unique swing-open module panels offer easy maintenance.
- Read/Restore, Clear/Write operation. Read/Modify/Write optional.
- Small size, standard 19" rack mounting provisions.
- Advanced optional self-tester with indicator lights provides automatic error detection.
- System is easily interfaced with external equipment.
- Partitioning available for special operating requirements.
- 2- $\mu$ s integrated circuit memory system also available.

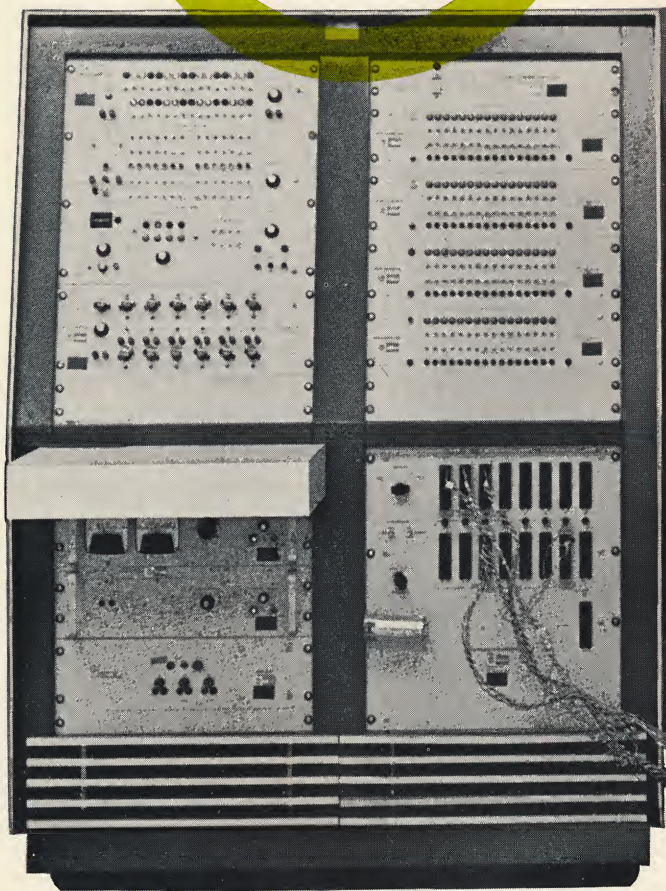
## ***Reliable***

- Field-proved RCA circuit modules combine rugged design with easy accessibility.
- RCA 30/18 ferrite cores are tested five times; 100% dynamic test on all stacks; rigorous environmental operating tests on whole memory system.
- Information retained in case of power removal or reduction.
- Exceptionally conservative voltage and power ratings assure long, reliable component life.

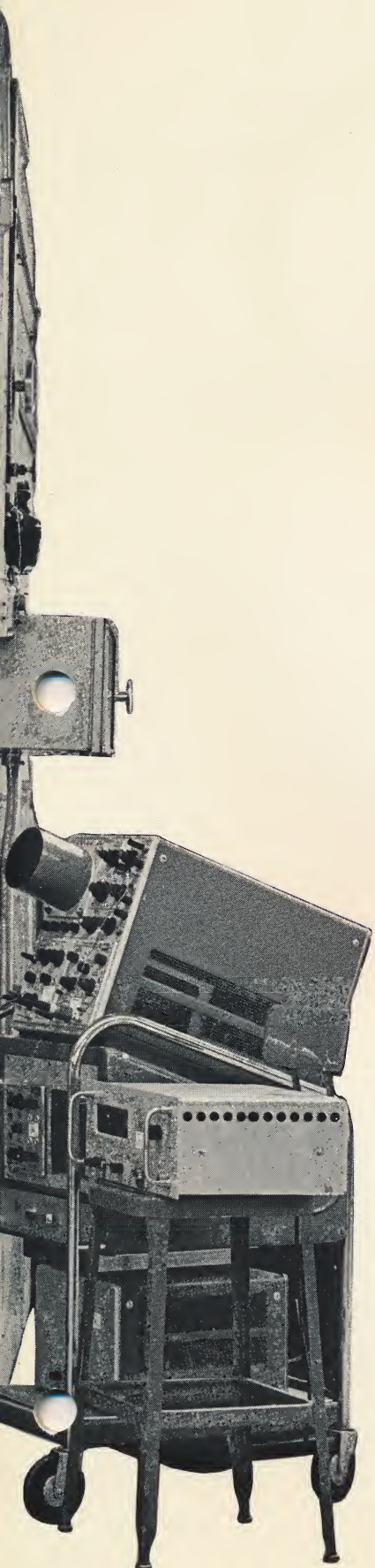




RCA's stringent  
quality assurance pro-  
cedures include worst-case  
testing of memory systems in en-  
vironmental chambers. Each  
system must pass this  
rigorous, dynamic  
testing process.







***rigorous test  
procedures assure  
high reliability  
of the RCA 1-μs  
memory system***

RCA takes painstaking care to assure high reliability memory products. The quality assurance program starts with incoming materials inspection and continues through sub-assembly fabrication to completed system testing.

All ferrite cores, planes, and stacks used in the new RCA 1-μs memory system are produced by RCA and stringently tested at every step of manufacture. The result is a line of memory systems which combine ultra-reliability and outstanding performance to help you to build superior data handling equipment.

***fast, reliable  
system features  
expandable memory,  
compact design***

- Memory size is expandable to 32,768 words x 36 bits.
- Overall system size is only 21" high x 22" deep; fits into a standard 19" rack. Power supply and optional self-tester each measures only 7½" high.
- Integrated circuit logic increases speed, reduces size, lowers power needs.
- All-silicon driver circuitry enhances performance.
- Efficient circuit board design provides higher speed through shorter current paths, permits easy servicing.
- Unique RCA 30/18 cores for economy without sacrificing high speed.
- Worst-case circuit design assures reliable operation.



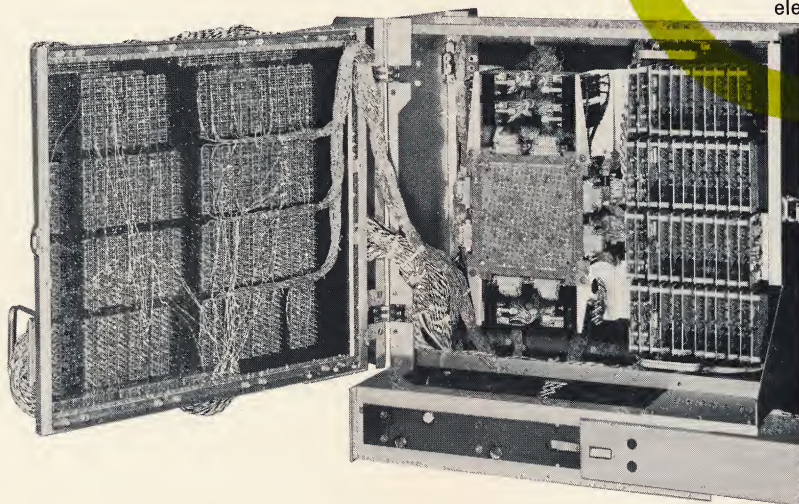


# ***RCA's 1- $\mu$ S integrated circuit memory system is available now!***

Design this new RCA high speed, high reliability memory system into your computer or data processing equipment. It's fast, versatile, reliable. Storage capacity expands to 32,768 words x 36 bits. And it's easily interfaced with external systems. It combines custom flexibility in a standard package state-of-the-art memory system.

For complete information contact the RCA field representative nearest you.

RCA's advanced, reliable memory stacks utilize special RCA 30/18 ferrite cores to attain fast switching speeds. Swing-open panels provide easy accessibility to electronics.



## ***RCA FIELD OFFICES***

### ***EAST***

Maplewood, N. J. 07040, 2075 Millburn Ave.	201-485-3900
Syracuse, N. Y. 13203, 731 James St.	315-474-5591
Haddonfield, N. J. 08034, 605 Marlton Pike	609-428-4802

### ***NORTHEAST***

Needham Heights, Mass. 02194, 64 'A' St.	617-444-7200
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### ***SOUTHEAST***

Riviera Beach, Fla. 33404, 2828 Broadway	305-842-1577
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### ***WEST***

Hollywood, Calif. 90028, 6363 Sunset Blvd.	213-461-9171
Los Altos, Calif. 94022, 4546 El Camino Real	415-948-8996

### ***CENTRAL***

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Minneapolis, Minn. 55416, 5805 Excelsior Blvd. Lathrup Village, Mich. 48037, 28840 Southfield Rd.	612-929-0676 313-353-9770

### ***GOVERNMENT***

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Washington, D.C. 20006, 1725 K St., NW	202-337-8500

### ***INTERNATIONAL SALES***

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